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## 23. OCCURRENCE OF CHILLI GALL MIDGE, *ASPHONDYLIA CAPSICI* BARNES (CECIDOMYIIDAE: DIPTERA) IN SOUTH ANDAMANS, ANDAMAN ISLANDS

The chilli gall midge, *Asphondylia capsici* Barnes is a serious pest of chillies and bell pepper, with the potential to reduce the yield by infesting fruiting parts. Ayyanna and Raghavaiah (1990) reported the occurrence of this pest on chillies at Bapatla, Andhra Pradesh, leading to deformation of the flower buds and bud-drop to the extent of 6.5%.

During 1998 and 1999, from September-January, we noticed the pest on the bell pepper grown in our experimental plots. Damage of up to 28 % was recorded. The attacked flowers malformed into galls, dried up and dropped to the ground. The infected flowers when dissected showed pale orange maggots 3 mm long. The malformed buds were incubated in plastic containers over sand to facilitate pupation and emergence of adult *A. capsici*. The adult midge was dark, reddish-brown, mosquito-like, measuring 3 mm in length. During the course of rearing,

two unidentified hymenopterous parasitoids were also obtained, which had parasitized the larvae and pupae. Tomar *et. al.*, (1997) reported *Eurytoma* sp., *Dinarmus* sp. and *Bracon* sp. parasitizing *A. capsici* larvae and pupae.

This is the first report of the pest from Andaman Islands.

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## 24. OVERWINTERING POPULATION OF *DANAUS* (*SALATHURA*) *GENUTIA* IN TIGER VALLEY IN SANJAY GANDHI NATIONAL PARK, MUMBAI, MAHARASHTRA

(With one text-figure)

Many species of butterflies migrate from cold temperate regions of the northern latitude to warmer regions during fall, and move north during spring (Williams 1930). The Monarch butterfly (*Danaus plexippus*) of North America is one of the best studied for its migratory behavior (Urquhart 1976, 1978; Urquhart and Urquhart 1979; Brower 1995). Mark, Release and Recapture (MRR) studies showed that the migrating Monarchs reached Sierra Madre Occidentale mountains in Northern Mexico where they hibernate in millions. At the onset of spring they move northwards and lay eggs on milkweed plants in the southern USA. The next generation from these eggs moves to breed further north (Brower 1995).

Most of the butterflies from the northeastern North America overwinter in Sierra Madre Occidentale and Alpha in Mexico. But the populations west of the Rockies congregate in huge numbers on the West Coast in California, in places such as the Monterey Peninsula. Urquhart (1965) defined two types of colonies in California, a transient roosting colony of short duration and a long-term roosting colony. Individuals of short term roosting colonies leave the roosting site under suitable conditions to take nourishment, but do not come back to the same site, while long-term roosting colonies stay in the roosting sites for a long period of time. Unlike some hibernating organisms that do not move, overwintering butterflies are free flying individuals in reproductive diapause, although

some females may be gravid (Ackery and Vane-Wright 1984). Some species congregate at overnight roosting sites, particularly in cold and windy weather. This is defined as nocturnal, communal or gregarious roosting behaviour (Ackery and Vane-Wright 1984). Such butterflies leave the site in the morning and may not return to the same spot the next day. Migration of the Danainae butterflies, especially *Tirumala*, *Euploea*, *Danaus* and *Parantica*, has also been recorded in India and elsewhere in south and southeast Asia (Williams 1930; Chaturvedi 1998 and references therein). Other observers at the beginning of the 20th century have described gregarious or nocturnal roosting behaviour for *Tirumala hamata* in Queensland, Australia (McNeill 1937), *Tirumala petivariana* in E. Africa (Poulton 1934), and *Danaus genutia* in Hongkong (Kershaw 1905-1907). Although migration of danaids has been described in India, it was presumed that the migratory population dispersed with the local population. Also, there was no evidence of overwintering populations.

On March 3, 1992, in the company of Ulhas Paralkar, Amar Mehta, and others in the Sanjay Gandhi National Park, near Tulsi dam, in Mumbai, Maharashtra, I came upon a huge congregation of Common Tiger *Danaus* (*Salathura*) *genutia* butterflies, near the water filtration system outlet between the pipelines. As we approached, the butterflies resting on the ferns and bamboo clumps were disturbed and flew all around us in a thick cloud. This location will now